

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s):	James R. H. Challenger, George P. Copeland, Arun K. Iyengar, Mark H. Linehan		
Assignee:	International Business Machines Corporation		
Title:	Method and System for Processing Multiple Fragment Requests in a Single Message		
Serial No.:	10/034,726	Filing Date:	December 19, 2001
Examiner:	Jeffrey R. Swearingen	Group Art Unit:	2145
Docket No.:	AUS920010856US1	Customer No.	65362

Austin, Texas
June 2, 2008

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APPEAL BRIEF UNDER 37 CFR § 41.37

Dear Sir:

Applicants submit this Appeal Brief pursuant to the Notice of Appeal filed in this case on January 2, 2008. The fee for this Appeal Brief is being paid electronically via the USPTO EFS. The Board is authorized to deduct any other amounts required for this appeal brief and to credit any amounts overpaid to Deposit Account. No. 09-0447.

I. REAL PARTY IN INTEREST - 37 CFR § 41.37(c)(1)(i)

The real party in interest is the assignee, International Business Machines Corporation, as named in the caption above and as evidenced by the assignment set forth at Reel 019318, Frame 0061.

II. RELATED APPEALS AND INTERFERENCES - 37 CFR § 41.37(c)(1)(ii)

Based on information and belief, there are no appeals or interferences that could directly affect or be directly affected by or have a bearing on the decision by the Board of Patent Appeals and Interferences in the pending appeal. Pursuant to current Patent Office practice, Appendix "A" contains copies of all decisions rendered by a court or the Board in this "Related Appeals and Interferences" section, and is intentionally provided as an empty appendix.

III. STATUS OF CLAIMS - 37 CFR § 41.37(c)(1)(iii)

Claims 1-10, 12-21, and 23-32 are pending in the application. Claims 11, 22 and 33 have been withdrawn. Claims 1-10, 12-21, and 23-32 stand rejected. The rejection of claims 1-10, 12-21, and 23-32 is appealed. Appendix "B" contains the full set of pending claims.

IV. STATUS OF AMENDMENTS - 37 CFR § 41.37(c)(1)(iv)

There have been no amendments filed subsequent to the Final Office Action dated October 1, 2007.

V. SUMMARY OF CLAIMED SUBJECT MATTER - 37 CFR § 41.37(c)(1)(v)

The claims of the present patent application are directed to a method, apparatus, and computer program product for processing objects within a data processing system by sending a first request message including a set of source identifiers if a cache search determines that a set of fragments associated with the source identifiers are not in the cache, and then receiving a first response message including an aggregated set of fragments associated with the source identifiers. The subject matter defined in independent claims 1, 12, and 23 may be understood with reference to the example embodiments depicted, *inter alia*, in Figures 9A-9C which depict how multiple cache fragments are aggregated within a single response message. As described and depicted in Figure 9B, a message is received at a computing device that contains a cache management unit (step 922). The message includes a set of source identifiers (e.g., FRAGMENTLINK tag) to specify the location in a fragment for an included or linked fragment which is to be inserted into the fragment during fragment or page assembly or page rendering. In this way, performance for processing fragments can be improved by obtaining multiple fragments in a single response message. To this end, the computing device searches a cache to see if the fragments associated with the set of source identifiers are cached (step 926). If the identified fragments are not cached, the computing device sends a first request message including the non-cached set of source identifiers to a server (step 934). In response, a response message is provided which includes the set of fragments identified by the set of source identifiers.

To comply with 37 CFR § 41.37(c)(1)(v), a color-coded comparison of independent claim 1 (with reference numerals) and Figure 9B is set forth below:

1. A method for processing objects within a data processing system in a network, the method comprising:

searching a cache to determine that a set of fragments associated with a set of source identifiers are not in the cache (926), wherein a source identifier identifies a source location for obtaining a fragment;

sending a first request message comprising the set of source identifiers (934); and

receiving a first response message comprising the set of fragments (936).

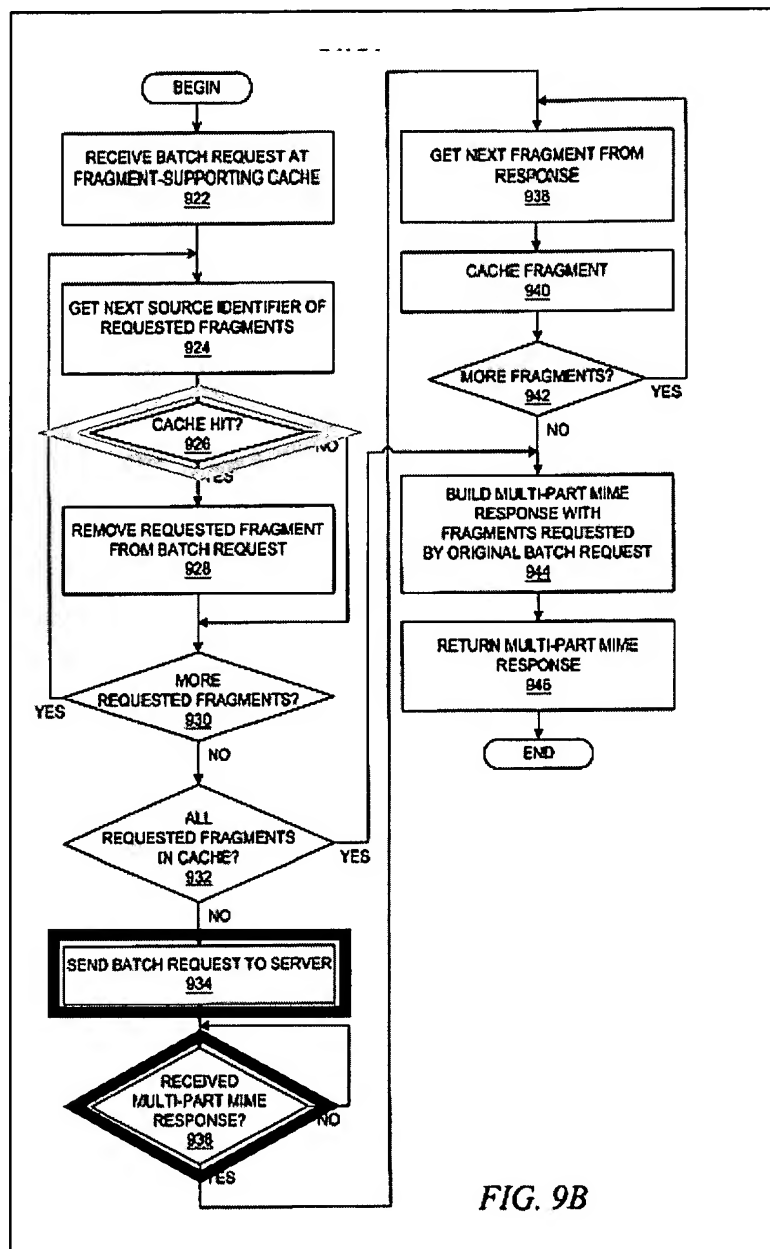


FIG. 9B

In further compliance with 37 CFR § 41.37(c)(1)(v), a color-coded comparison of selected Figures from the application and each of the pending independent claims is attached at Appendix "C" to provide a concise explanation of the subject matter defined in each independent claim. As will be appreciated, the color-coded comparison is provided to summarize the claimed subject matter by explaining how the claim language reads onto or overlaps with the exemplary

disclosure from the application and drawings, and is not being provided to specifically define or limit the claim terminology to the specific example depicted. The subject matter of the independent claims is set forth in the claims (page 157, line 1 to page 166, line 9), as well as in the specification at page 15, line 1 to page 16, line 9; page 17, line 25 to page 25, line 28; page 27, lines 19-25; page 31, lines 10-30; and page 49, line 19 to page 156, line 9; though additional contextual description is provided in the application. For example, the subject matter of claim 1 maps generally to Figures 6Q, 6V, and 7A-B, and more specifically to Figures 9A-C, and to the specification at page 15, line 1 to page 16, line 9, and page 99, line 24 to page 104, line 4; the subject matter of claim 12 maps generally to Figures 6Q, 6V, and 7A-B, and more specifically to Figures 9A-C, and to the specification at page 15, line 1 to page 16, line 9, and page 99, line 24 to page 104, line 4; and the subject matter of claim 23 maps generally to Figures 6Q, 6V, and 7A-B, and more specifically to Figures 9A-C, and to the specification at page 15, line 1 to page 16, line 9; page 25, lines 11-28; and page 99, line 24 to page 104, line 4. While Applicants have identified passages from the specification to explain the independent claim subject matter and how it may be implemented with a computer program product in a data processing system in a network, it will be appreciated that the referenced description includes contextual information to provide an overall context for an example embodiments, and therefore should not be used to improperly read limitations from the specification into the claims.

VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL

In the Final Office Action dated October 1, 2007, the Examiner rejected the pending claims 1-10, 12-21, and 23-32, asserting that claims 1, 4-5, 8, 11, 12, 15-16, 19, 22, 23, 26-27, 30, and 33 are anticipated by U.S. Patent No. 6,345,292 to Daugherty et al. ("Daugherty"); claims 2-3, 13-14, and 24-25 are obvious over Daugherty and Official Notice; claims 6-7, 17-18, and 28-29 are obvious over Daugherty and Borenstein et al. "MIME: Mechanisms for Specifying and Describing the Format of Internet Message Bodies" ("Borenstein"); and claims 9-10, 20-21, and 31-32 are obvious over Daugherty and U.S. Patent No. 5,987,480 to Donohue. Accordingly, in view of claims 11, 22, and 33 having been withdrawn, the grounds of rejection that are on appeal are the rejection of claims 4-5, 8, 11, 15-16, 19, 23, 26-27, and 30 are anticipated by Daugherty et al.; claims 2-3, 13-14, and 24-25 are obvious over Daugherty and Official Notice; claims 6-7, 17-18, and 28-29 are obvious over Daugherty and Borenstein.

VII. ARGUMENTS

A. Claims 1, 4-5, 8, 11, 12, 15-16, 19, 22, 23, 26-27, 30, and 33 Are Not Anticipated by Daugherty

Applicants appeal the anticipation rejection of the claims because Daugherty's disclosure -- of an architecture for rendering web pages by requesting un-cached clips one clip at a time -- does not anticipate the present invention's scheme for aggregating multiple cache fragments within a single response message. *See, e.g.*, Application, pages 99-104 (paragraphs 319-329). This scheme is variously recited in the claims with reference to searching the cache to determine that "a set of fragments associated with a set of source identifiers are not in the cache" and then "sending a first request message comprising the set of source identifiers" previously determined to be missing from the cache. *See, e.g.*, independent claims 1, 12, and 23 (emphasis added). The underlining and boldface in the quoted claim passages are provided to emphasize that the "set of fragments" (plural) are the subject of the cache search and that a corresponding "set of source identifiers" (plural) are being sent in the first request message.

Applicants respectfully submit that the claim rejections completely ignore the specific language of the claims that recite aggregating multiple cache fragments within a single response message. For example, the rejection of each of the independent claims 1, 12 and 23 states that this feature is found in Daugherty at column 5, line 49 through column 6, line 13. *See, Office Action*, pp. 3-4 (March 10, 2005). However, a careful reading of the cited passage confirms that Daugherty is not disclosing the present invention's use of a sending a first request message comprising a plurality of missing (or un-cached) source identifiers to obtain a first response message comprising the set of fragments. Indeed, Daugherty makes it quite clear that any missing clips from a first cache 110 are retrieved one at a time from another (second) cache source. *See*, Daugherty, col. 6, lines 39-41 ("If a particular clip requested by the ISAPI 106 is not in the first-level cache 110, the cache 110 requests the clip from the second server 104.") (emphasis added). The one-at-a-time clip replacement scheme is *repeatedly* described in Daugherty:

[I]f a particular clip requested by the first server 102 is not in the second-level cache 112, either, then the cache 112 requests the clip from the provider interface 114. The provider interface 114 maps the clip requested to the correct provider object. Each provider object at the second server 104 thus populates the second-level cache 112 with any of the clips not yet stored at the second-level cache 112. Therefore, the interface 114 may direct the clip request to a generic object 116, a stock object 118, or a weather object 120, in the embodiment of FIG. 2, although the invention is not necessarily so limited.

Once a provider object returns the HTML clip requested to the provider interface 114, the clip is stored in the second-level cache 112, provided to and also stored in the first-level cache 110, and ultimately provided to the ISAPI 106. Therefore, when the ISAPI 106 requests an HTML clip, three situations may occur. If the cache 110 has the clip stored therein, it immediately returns the clip to the ISAPI 106. If the cache 110 does not have the clip, but the cache 112 does, then the cache 112 returns the clip to the cache 110, which stores the clip and returns it to the ISAPI 106. If neither cache has the clip, then the provider interface 114 obtains the clip from one of the provider objects, returns it to the cache 112 where the clip is stored, and the cache 112 provides it to the cache 110, which also stores the clip and returns it to the ISAPI 106.

See also, Daugherty, col. 7, lines 9-34 (emphasis added).

At best, Daugherty discloses an HTML clip caching technique whereby any clips missing from a first-level cache are retrieved one at a time from a second-level cache. With the present invention, multiple cache fragments are aggregated in a single response message by including a plurality of source identifiers for uncached fragments to more efficiently assemble a set of fragments. Because Daugherty does not disclose sending a request message in which are aggregated the source identifiers for the uncached fragments, Daugherty cannot be used as an anticipatory reference against the claims. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987) (“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.”).

In the Final Office Action, the Examiner has not challenged the characterization of Daugherty’s disclosure. Instead, the Examiner proposes an unreasonably broad and wholly unsupported definition of “set of source identifiers” and then asserts that Daugherty meets this overbroad definition. In particular, the Examiner asserts that the recitation of a “set of source identifiers” refers to a single source identifier. *See, Final Office Action*, p. 2 (“One clip is *a set of source identifiers*. The use of *a set of source identifiers* does not limit the number of identifiers to a quantity of two or more, based on set theory mathematics.”). With all due respect, this is simply not a reasonable interpretation of the “set of source identifiers” term or the “set of fragments” term. As explained more fully below, when the *proper* claim interpretation is used, Daugherty simply does not meet the requirements of the claims.

1. Correct Interpretation of “Set of Fragments” And “Set of Source Identifiers”

According to the MPEP Guidelines, the pending claims must be “given their broadest reasonable interpretation consistent with the specification” during patent examination. *See*, MPEP § 2111. This was confirmed with the Federal Circuit statement that:

The Patent and Trademark Office (“PTO”) determines the scope of claims in patent applications not solely on the basis of the claim language, but upon giving claims their broadest reasonable construction “in light of the specification as it would be interpreted by one of ordinary skill in the art.” *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364[, 70 USPQ2d 1827] (Fed. Cir. 2004). Indeed, the rules of the PTO require that application claims must “conform to the invention as set forth in the remainder of the specification and the terms and phrases used in the claims must find clear support or antecedent basis in the description so that the meaning of the terms in the claims may be ascertainable by reference to the description.” 37 CFR 1.75(d)(1).

Phillips v. AWH Corp., 415 F.3d 1303, 1316, 75 USPQ2d 1321, 1329 (Fed. Cir. 2005). Thus, “the broadest reasonable interpretation of the claims must also be consistent with the interpretation that those skilled in the art would reach.” *In re Cortright*, 165 F.3d 1353, 1359, 49 USPQ2d 1464, 1468 (Fed. Cir. 1999). “This means that the words of the claim must be given their plain meaning unless the plain meaning is inconsistent with the specification.” *In re Zletz*, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989). “The ordinary and customary meaning of a term may be evidenced by a variety of sources, including ‘the words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art.’” MPEP § 2111.01, *citing Phillips v. AWH Corp.*, 415 F.3d at 1314, 75 USPQ2d at 1327.

Based on the foregoing, Applicants submit that the “set of fragments” refers to a plurality (e.g., two or more) of “fragments” that are searched for in the cache. In similar fashion, the “set of source identifiers” refers to the corresponding plurality (e.g., two or more) of “source identifiers” that are sent in the first message request. In support of this common sense definition, Applicants note that the claim itself refers to a “fragments” (plural) and “source identifiers” (plural) so that the claim language itself clearly and explicitly recites the plurality requirement for each of these terms. The Examiner’s characterization might have some persuasion if the claims recited a “source identifier set,” but this is not the case, and instead Applicants have explicitly recited “a set of source identifiers.” Applicants’ common sense definition is further supported by the specification where the term “set” is repeatedly used in reference to a plurality of items. For example, the term “set” is used to refer to a plurality of intermediate servers, which

are shown in Figure 1C as being a plurality of servers. *See, e.g.*, Application, Figure 1C ¶ 84 (“a set of intermediate servers 158”) Thus, Applicants’ proposed interpretation is consistent with the specification as it would be interpreted by one of ordinary skill in the art. *See*, MPEP § 2111, *citing In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364, 70 USPQ2d 1827 (Fed. Cir. 2004). In addition, Applicants’ proposed interpretation is consistent with the “ordinary and customary meaning” that would be provided by any dictionary evidence which would confirm that the plurality of a term is denoted by the suffix “s” at the end of the term. If there is any reputable extrinsic evidence that supports the Examiner’s proposed interpretation here, Applicants would request that it be provided. However, based on Applicants’ review, Applicants’ proposed interpretation is consistent with the specification and with the common and accepted meaning of the terms “fragments” and “source identifiers.”

2. The Cited Art Does Not Meet The Properly Interpreted “Set of Fragments” And “Set of Source Identifiers” Requirements

As explained above, the broadest reasonable interpretation of the “set of fragments” and “set of source identifiers” terms that is consistent with the specification (and confirmed with any dictionary evidence) refers to a plurality of items, so that the cache is searched to identify a “set” or plurality “of fragments associated with a set of source identifiers” that are not in the cache, and then the “set” or plurality “of source identifiers” are sent in the first request message. These requirements are simply not met by Daugherty’s disclosure or the disclosure of any of the other cited references or “Official Notice” relied upon by the Examiner. Accordingly, Daugherty does not anticipate the present invention’s claimed scheme for determining when a plurality of fragments are not cached, and then sending a first request message comprising the plurality of source identifiers associated with the missing fragments. *See, e.g.*, claims 1 and 12.

Accordingly, Applicants respectfully request that the anticipation rejections be withdrawn and that the claims be allowed. To the extent that each of dependent claims 2-3, 6-7, 9-10, 13-14, 17-18, 24-25, 28-29, and 31-32 each include the recited “set of fragments” and “set of source identifiers” requirements by virtue of their dependency from claims 1, 12, and 23, Applicants respectfully submit that a *prima facie* case of obviousness has not been established showing that all the claim limitations are taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974); *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). As explained above, the broadest reasonable interpretation of the “set of fragments” and “set of source identifiers” terms that is consistent with the specification refers to a plurality of

items. This requirement is simply not met by Daugherty's disclosure, either alone or in combination with the various combinations with "Official Notice," RFC 1341 and Donohue asserted by the Examiner. Accordingly, Applicants respectfully request reconsideration and withdrawal of the obviousness rejections because the Examiner has not established a *prima facie* case of obviousness.

B. Claims 2-3, 6-7, 9-10, 13-14, 17-18, 20-21, 24-25, 28-29 and 31-32 Are Not Obvious

Applicants appeal the obviousness rejection of claims 2-3, 6-7, 9-10, 13-14, 17-18, 20-21, 24-25, 28-29 and 31-32 over Daugherty and the various combinations with "Official Notice," RFC 1341 and Donohue because the Examiner has not established a *prima facie* case of obviousness. To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974); *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). Where a rejection is based on the assertion that all claim limitations are found in a number of prior art references, the fact finder must determine "[w]hat the prior art teaches, whether it teaches away from the claimed invention, and whether it motivates a combination of teachings from different references." *In re Fulton*, 391 F.3d 1195, 1199-1200 (Fed. Cir. 2004). The motivation-to-combine inquiry "prevent[s] statutorily proscribed hindsight reasoning when determining the obviousness of an invention." *Alza Corp. v. Mylan Labs., Inc.*, No. 06-1019 (Fed. Cir. Sept. 6, 2006). Thus, in the absence of any *explicit* suggestion in the cited references that they should be combined, the Examiner must show that an *implicit* suggestion to combine these references may be found in the "common knowledge, the prior art as a whole, or the nature of the problem itself." *Dystar Textilfarben GMBH v. C.H. Patrick Co.*, No. 06-1088, pp. 7-8 (Fed. Cir. 2006). When a motivation to combine is not explicitly taught by the prior art references, the "evidence" of motive may be provided as an explanation of the well-known principle or problem-solving strategy to be applied, but in any event *requires* some evidence of any common knowledge and common sense, above and beyond mere assumption. *Id.*, pp. 17-20.

As a preliminary matter, a *prima facie* case of obviousness has not been established because, as noted above, none of the references, alone or in combination, discloses or suggests sending a request message that includes "a plurality of source identifiers" associated with the fragments not in the cache (as variously recited in the independent claims 1, 12 and 23). These deficiencies are not remedied by the Examiner's citation to Official Notice (that recursion has

been well known in the field of computer science), the RFC 1341 (MIME message formats) or Donohue. To the extent that the additional requirements of dependent claims 2-3, 6-7, 9-10, 13-14, 17-18, 20-21, 24-25, 28-29 and 31-32 are admitted to be missing from the Daugherty disclosure, and are only remedied by the selective combination of the “Official Notice,” RFC 1341 and Donohue, Applicants submit that the Examiner has engaged in improper hindsight reconstruction by using the Applicants invention to selectively pick and choose from the cited art.

C. The Reliance on “Official Notice” To Reject Claims 2-3, 13-14, and 24-25 Is Improper

As for the specific requirements recited in dependent claims 2-3, 13-14, and 24-25 that the Examiner concedes are missing from Daugherty, the Examiner invokes “Official Notice” to meet the missing requirements. Applicants respectfully submit that the Examiner has improperly relied upon Official Notice in asserting that the requirements of these claims are satisfied by the assertion that “recursion has been well known in the field of computer science for decades.” *See, Office Action*, p. 5. For example, Applicants submit that the requirements of claim 2 -- which requires determining if a fragment has a set of linking elements for a set of next-level fragments, and scanning the fragment to retrieve source identifiers from the linking element -- are not satisfied by the assertion that “recursion has been well known.” Nor are the requirements of claim 3 -- retrieving and combining fragments -- met by the “recursion” assertion. Accordingly, Applicants hereby challenge the factual assertion in the Official Notice, and request that the Examiner provide documentary evidence in support of the assertion showing how the specific requirements of claims 2-3, 13-14, and 24-25 are disclosed in the prior art. *See*, MPEP § 2144.03(C) (Rev. 5, August 2006) (“If applicant adequately traverses the examiner’s assertion of official notice, the examiner must provide documentary evidence in the next Office action if the rejection is to be maintained. *See* 37 CFR 1.104(c)(2).”).

D. The Obviousness Rejection of Claims 6-7, 17-18 and 28-29 Is Improper

Likewise, the Examiner concedes that the additional requirements recited in dependent claims 6-7, 17-18 and 28-29 are missing from Daugherty, but asserts that the disclosure of MIME message formats disclosed in RFC 1341 meets the missing requirements. *See, Office Action*, p. 5. However, there is nothing in RFC 1341 to suggest that response messages containing multiple uncached fragments are sent as “a multi-part MIME” message, as variously recited in claims 6-7, 17-18 and 28-29. As for claims 9-10, 20-21, and 31-32, the Examiner

admits that the additional requirements of these claims (reciting the use of SGML linking elements and HTTP request and response messages) are not met by Daugherty, but seeks to overcome this deficiency by invoking the disclosure of Donohue. However, the proposed combination appears to conflict with Daugherty's disclosure of using XML data structures and cache transfer messages, in effect teaching away from the Donohue disclosure. When, as here, the Daugherty reference teaches away from the claimed invention, a *prima facie* case of obviousness has been rebutted. *See*, MPEP § 2144.05(III) ("A *prima facie* case of obviousness may also be rebutted by showing that the art, in any material respect, teaches away from the claimed invention. *In re Geisler*, 116 F.3d 1465, 1471, 43 USPQ2d 1362, 1366 (Fed. Cir. 1997)....").

In the absence of any proper evidence that persons skilled in the art would be motivated to combine the references, the foregoing obviousness rejections appear to be a textbook example of hindsight reconstruction. Obviousness can not be established by hindsight combination to produce the claimed invention. *In re Gorman*, 933 F.2d 982, 986, 18 USPQ2d 1885, 1888 (Fed. Cir. 1991). In short, the Examiner has not made a *prima facie* case that the combination of Daugherty, "Official Notice," RFC 1341 and Donohue were suggested by the prior art, common knowledge, or the nature of the problem, viewed through the eyes of an ordinary artisan, but has instead improperly relied upon Applicants' disclosure to reconstruct the prior art. Accordingly, Applicants respectfully request that the obviousness rejection of claims 2-3, 6-7, 9-10, 13-14, 17-18, 20-21, 24-25, 28-29 and 31-32 be withdrawn and that the claims be allowed.

VIII. CLAIMS APPENDIX - 37 CFR § 41.37(c)(1)(viii)

A copy of the pending claims involved in the appeal is attached as Appendix "B."

IX. EVIDENCE APPENDIX - 37 CFR § 41.37(c)(1)(ix)

None.

X. RELATED PROCEEDINGS APPENDIX - 37 CFR § 41.37(c)(1)(x)

There are no related proceedings.

XI. CONCLUSION

A *prima facie* case of anticipation and obviousness has not been established because none of the cited references discloses Applicant's disclosed scheme for aggregating multiple fragments in a single response message. In view of the above arguments, it is respectfully urged that the anticipation rejection of claims 1, 4-5, 8, 12, 15-16, 19, 23, 26-27, and 30, and the

obviousness rejections of claims 2-3, 6-7, 9-10, 13-14, 17-18, 20-21, 24-25, 28-29, and 31-32 be withdrawn and that the claims be allowed.

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Respectfully submitted,

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APPENDIX A - RELATED APPEALS AND INTERFERENCES

There are no decisions rendered by a court or the Board in any related proceeding.

APPENDIX B - PENDING CLAIMS

1. (Original) A method for processing objects within a data processing system in a network, the method comprising:
searching a cache to determine that a set of fragments associated with a set of source identifiers are not in the cache, wherein a source identifier identifies a source location for obtaining a fragment;
sending a first request message comprising the set of source identifiers; and
receiving a first response message comprising the set of fragments.
2. (Original) The method of claim 1 further comprising:
determining that a fragment comprises a set of linking elements for a set of next-level fragments, wherein each linking element comprises a source identifier; and
scanning the fragment to retrieve the set of source identifiers.
3. (Original) The method of claim 2 further comprising:
retrieving the set of fragments from the first response message; and
combining the fragment and the set of fragments into an assembled fragment.
4. (Original) The method of claim 1 further comprising:
receiving a second request message; and
retrieving the set of source identifiers from the second request message.
5. (Original) The method of claim 4 further comprising:
sending a second response message comprising the set of fragments.
6. (Original) The method of claim 5 wherein the second response message is a multi-part MIME (Multipurpose Internet Mail Extension) response message.
7. (Original) The method of claim 1 wherein the first response message is a multi-part MIME response message.

8. (Original) The method of claim 1 wherein a source identifier is formatted as a URI (Uniform Resource Identifier).

9. (Original) The method of claim 2 wherein a linking element is defined using SGML (Standard Generalized Markup Language).

10. (Previously Presented) The method of claim 1 wherein the first response message is an HTTP (Hypertext Transport Protocol) Response message and the first request message is an HTTP Request message.

11. (Withdrawn) A method for processing objects within a data processing system in a network, the method comprising:

receiving a request message at a server, wherein the request message comprises a set of source identifiers for a set of fragments;

searching a cache to determine if a plurality of the set of fragments are not in the cache;

sending a first request message comprising a plurality of source identifiers associated with the plurality of the set of fragments not in the cache;

receiving a first response message comprising the plurality of the set of fragments not in the cache;

generating a response message comprising the set of fragments; and

sending the response message.

12. (Original) An apparatus for processing objects within a data processing system in a network, the apparatus comprising:

means for searching a cache to determine that a set of fragments associated with a set of source identifiers are not in the cache, wherein a source identifier identifies a source location for obtaining a fragment;

means for sending a first request message comprising the set of source identifiers; and

means for receiving a first response message comprising the set of fragments.

13. (Original) The apparatus of claim 12 further comprising:
means for determining that a fragment comprises a set of linking elements for a set of
next-level fragments, wherein each linking element comprises a source identifier;
and
means for scanning the fragment to retrieve the set of source identifiers.
14. (Original) The apparatus of claim 13 further comprising:
means for retrieving the set of fragments from the first response message; and
means for combining the fragment and the set of fragments into an assembled fragment.
15. (Original) The apparatus of claim 12 further comprising:
means for receiving a second request message; and
means for retrieving the set of source identifiers from the second request message
16. (Original) The apparatus of claim 15 further comprising:
means for sending a second response message comprising the set of fragments.
17. (Original) The apparatus of claim 16 wherein the second response message is
a multi-part MIME (Multipurpose Internet Mail Extension) response message.
18. (Original) The apparatus of claim 12 wherein the first response message is a
multi-part MIME response message.
19. (Original) The apparatus of claim 12 wherein a source identifier is formatted
as a URI (Uniform Resource Identifier).
20. (Original) The apparatus of claim 13 wherein a linking element is defined
using SGML (Standard Generalized Markup Language).
21. (Original) The apparatus of claim 12 wherein the first response message is an
HTTP (Hypertext Transport Protocol) Response message and the first request message is an
HTTP Request message.

22. (Withdrawn) An apparatus for processing objects within a data processing system in a network, the apparatus comprising:
means for receiving a request message at a server, wherein the request message comprises a set of source identifiers for a set of fragments;
means for searching a cache to determine if a plurality of the set of fragments are not in the cache;
means for sending a first request message comprising a plurality of source identifiers associated with the plurality of the set of fragments not in the cache;
means for receiving a first response message comprising the plurality of the set of fragments not in the cache;
means for generating a response message comprising the set of fragments; and
means for sending the response message.

23. (Original) A computer program product in a computer readable medium for use within a data processing system in a network for processing objects, the computer program product comprising:
instructions for searching a cache to determine that a set of fragments associated with a set of source identifiers are not in the cache, wherein a source identifier identifies a source location for obtaining a fragment;
instructions for sending a first request message comprising the set of source identifiers;
and
instructions for receiving a first response message comprising the set of fragments.

24. (Original) The computer program product of claim 23 further comprising:
instructions for determining that a fragment comprises a set of linking elements for a set of next-level fragments, wherein each linking element comprises a source identifier; and
instructions for scanning the fragment to retrieve the set of source identifiers.

25. (Original) The computer program product of claim 24 further comprising:
instructions for retrieving the set of fragments from the first response message; and

instructions for combining the fragment and the set of fragments into an assembled fragment.

26. (Original) The computer program product of claim 23 further comprising: instructions for receiving a second request message; and instructions for retrieving the set of source identifiers from the second request message.

27. (Original) The computer program product of claim 26 further comprising: sending a second response message comprising the set of fragments.

28. (Original) The computer program product of claim 27 wherein the second response message is a multi-part MIME (Multipurpose Internet Mail Extension) response message.

29. (Original) The computer program product of claim 23 wherein the first response message is a multi-part MIME response message.

30. (Original) The computer program product of claim 23 wherein a source identifier is formatted as a URI (Uniform Resource Identifier).

31. (Original) The computer program product of claim 24 wherein a linking element is defined using SGML (Standard Generalized Markup Language).

32. (Original) The computer program product of claim 23 wherein the first response message is an HTTP (Hypertext Transport Protocol) Response message and the first request message is an HTTP Request message.

33. (Withdrawn) A computer program product for processing objects within a data processing system in a network, the computer program product comprising:
instructions for receiving a request message at a server, wherein the request message comprises a set of source identifiers for a set of fragments;

instructions for searching a cache to determine if a plurality of the set of fragments are not in the cache;

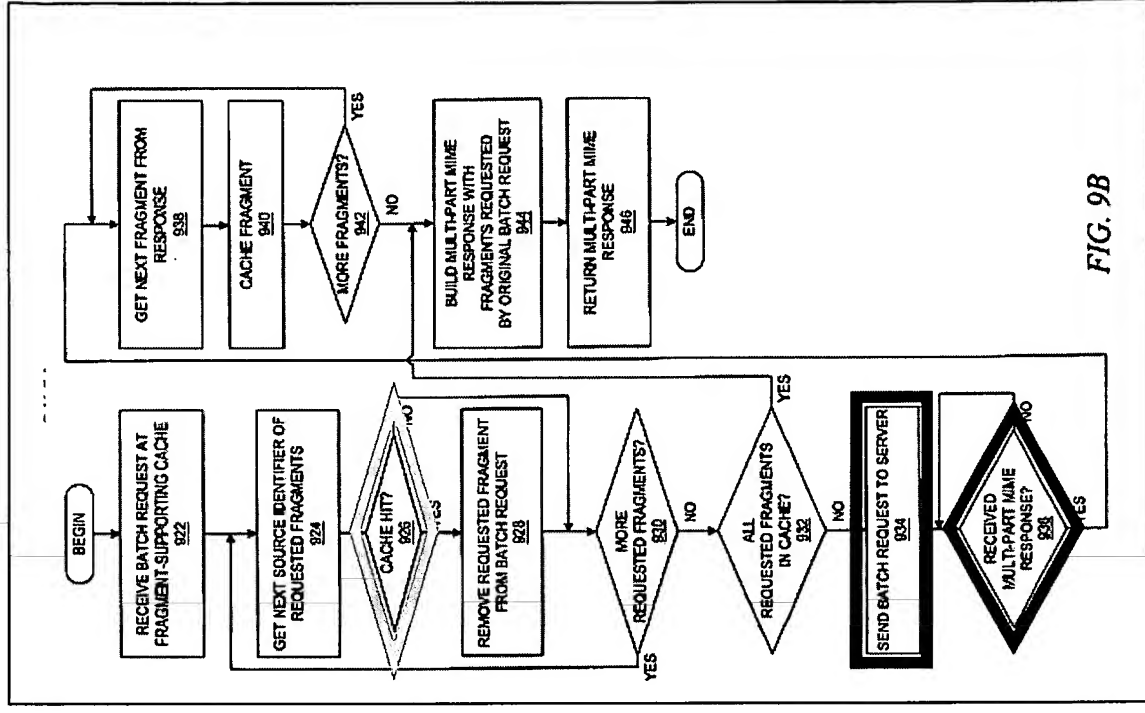
instructions for sending a first request message comprising a plurality of source identifiers associated with the plurality of the set of fragments not in the cache;

instructions for receiving a first response message comprising the plurality of the set of fragments not in the cache;

instructions for generating a response message comprising the set of fragments; and

instructions for sending the response message.

1. A method for processing objects within a data processing system in a network, the method comprising:
 - searching a cache to determine that a set of fragments associated with a set of source identifiers are not in the cache, wherein a source identifier identifies a source location for obtaining a fragment;
 - sending a first request message comprising the set of source identifiers; and
 - receiving a first response message comprising the set of fragments.



12. An apparatus for processing objects within a data processing system in a network, the apparatus comprising:

means for searching a cache to determine that a set of fragments associated with a set of source identifiers are not in the cache, wherein a source identifier identifies a source location for obtaining a fragment;

means for sending a first request message comprising the set of source identifiers; and

means for receiving a first response message comprising the set of fragments.

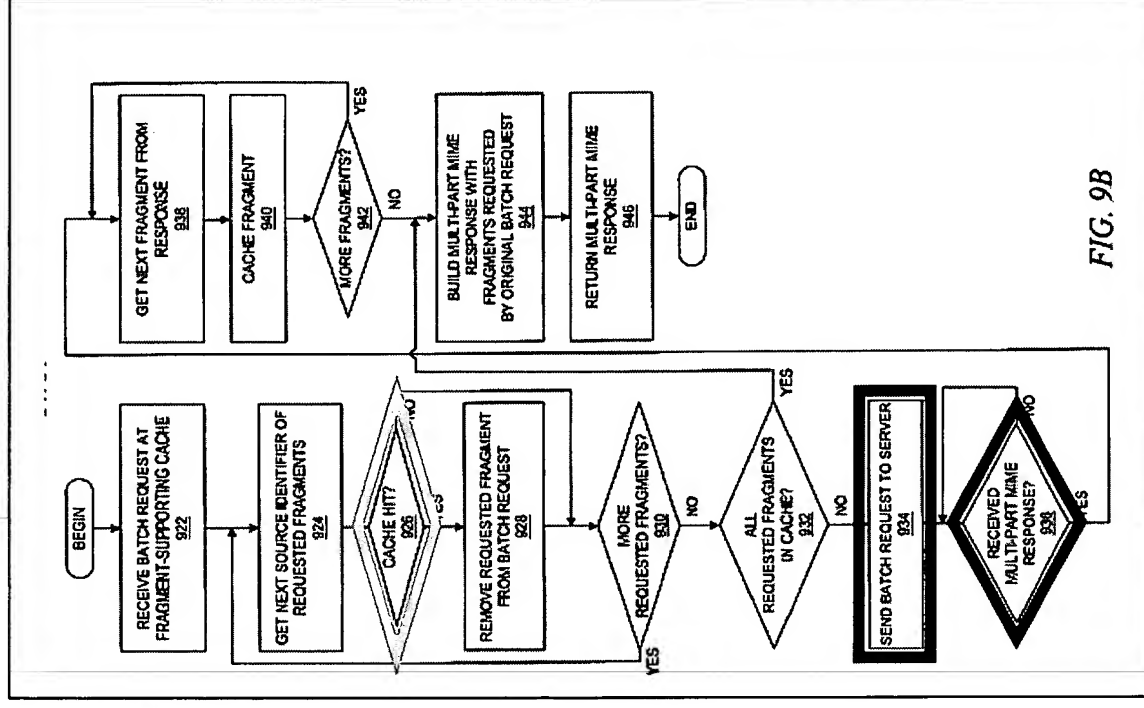


FIG. 9B

23. A computer program product in a computer readable medium for use within a data processing system in a network for processing objects, the computer program product comprising:

instructions for searching a cache to determine that a set of fragments associated with a set of source identifiers are not in the cache, wherein a source identifier identifies a source location for obtaining a fragment;

instructions for sending a first request message comprising the set of source identifiers; and

instructions for receiving a first response message comprising the set of fragments.

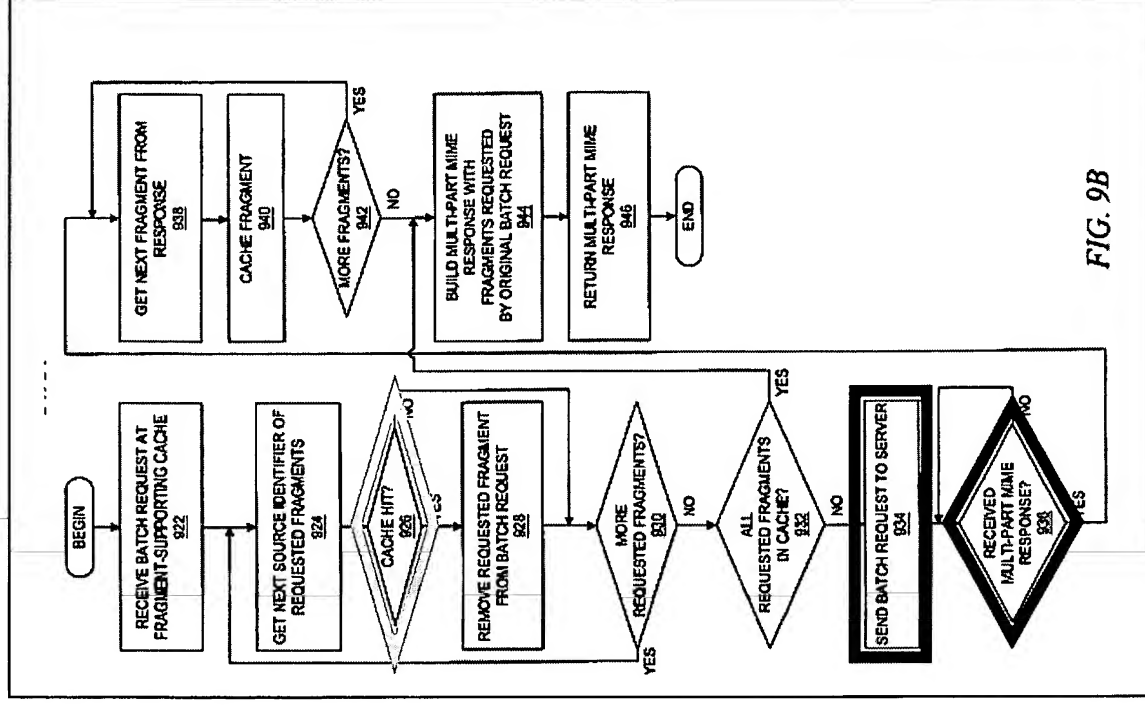


FIG. 9B